

[PHOTO SENSE ELEMENT AND OPERATION MODE]

Abstract of Disclosure

A photo sense element that is composed of a P-type doped layer, a N-type doped layer, an intrinsic layer, a first electrode corresponding to the P-type doped layer, a second electrode corresponding to the N-type doped layer and a dielectric layer. Wherein, the intrinsic layer is disposed in between the P-type doped layer and the N-type doped layer to form a diode. Moreover, the dielectric layer is disposed in between the P-type doped layer and the first electrode or in between the N-type doped layer and the second electrode to form a dielectric layer capacitor. By using the appropriate circuit design to have the parasitic capacitor formed by the diodes under the reverse bias state in parallel with the dielectric layer capacitor, so the photo sense element has greater capacitance. Furthermore, the operation mode of the photo sense element of the present invention is to charge the dielectric layer capacitor of the element before the photons are sensed, and to process the photo sensing and signal reading after the charging.

Figures